CLAIMS

1. A charger for generating hydrogen, which is stored in a fuel tank of a fuel cell system, by electrolyzing water in an inside of the fuel cell system, comprising:

water supply means that supplies water to the fuel cell system; and

power supply means that supplies electric power to a power intake electrode of the fuel cell system that takes in electric power for electrolyzing water supplied to the fuel cell system to generate hydrogen.

2. A charger according to claim 1, wherein a power supply port of the power supply means is connected to the power intake electrode of the fuel cell system in a state in which the power supply port and the power intake electrode are insulated from an outside.

3. A charger according to claim 1, wherein the power supply means includes: a plug for obtaining AC power supply from an outside; a DC converter for converting the AC power supply into a direct current; a transformer for transforming DC power supply into a voltage matched to a charging voltage of the fuel cell system; and a power supply port that supplies the transformed power supply to the power intake

electrode of the fuel cell system.

4. A charger according to claim 1, wherein the water supply means comprises means that supplies water in a state in which the fuel cell system is immersed in the water.

5. A charger according to claim 1, wherein the water supply means comprises means that changes water into a mist state and supplies the water to the fuel cell system.

6. A charger according to claim 1, further comprising a cooler that cools the fuel tank of the fuel cell system in a state in which the fuel cell system is attached to the charger.

7. A charger according to claim 1, further comprising a heater that heats a cell section of the fuel cell system in a state in which the fuel cell system is attached to the charger.

8. A charger according to claim 1, wherein the power supply means further includes power control means that controls electric power to be supplied to the fuel cell system.

9. A charger according to claim 8, wherein the power control means controls electric power to be supplied to the fuel cell system on the basis of a signal from a pressure sensor provided in the fuel tank of the fuel cell system.

10. A charger according to claim 1, further comprising valve control means that opens and closes a fuel supply valve provided in a fuel flow path, which introduces generated hydrogen to the fuel tank, on the basis of a signal concerning a pressure of hydrogen from a pressure sensor provided in the fuel tank of the fuel cell system.

11. A charger according to claim 1, further comprising a residual capacity detecting means that displays a residual amount of fuel in the fuel tank of the fuel cell system on the basis of a signal concerning a pressure of hydrogen from a pressure sensor provided in the fuel tank of the fuel cell system.

12. A charger for generating hydrogen, which is stored in a fuel tank of a fuel cell system, by electrolyzing water in an inside of the fuel cell system, comprising:

power supply means that supplies electric power

to a power intake electrode of the fuel cell system that takes in electric power for electrolyzing water in the inside of the fuel cell system to generate hydrogen; and

power control means that controls electric power to be supplied to the fuel cell system by the power supply means on the basis of a signal from a pressure sensor provided in the fuel tank of the fuel cell system.

13. A charger for generating hydrogen, which is stored in a fuel tank of a fuel cell system, by electrolyzing water in an inside of the fuel cell system, comprising:

power supply means that supplies electric power to a power intake electrode of the fuel cell system that takes in electric power for electrolyzing water in the inside of the fuel cell system to generate hydrogen; and

valve control means that opens and closes a fuel supply valve provided in a fuel flow path, which introduces generated hydrogen to the fuel tank, on the basis of a signal concerning a pressure of hydrogen from a pressure sensor provided in the fuel tank of the fuel cell system.

14. A fuel cell system that stores hydrogen,

which is generated by electrolyzing at least water supplied from an outside, in a fuel tank, comprising:

a cell section including an electrode to which an oxidizer is supplied, an electrode to which fuel is supplied, and an ion conductor that is held between the electrode to which an oxidizer is supplied and the electrode to which fuel is supplied;

a water supply section that supplies water supplied from the outside to the ion conductor of the cell section;

a power intake electrode that takes in electric power for electrolyzing water supplied from the water supply section to generate hydrogen from the outside; and

a fuel tank in which the generated hydrogen is stored.

15. A fuel cell system according to claim 14, wherein the water supply section includes: a water retention section that retains the water supplied from the outside; and a water flow path that supplies water held in the water retention section to the ion conductor.

16. A fuel cell system according to claim 14, wherein the water supply section includes: a water retention section that retains the water supplied

from the outside and water generated by discharge of the cell section; and a water flow path that supplies the water held in the water retention section to the ion conductor.

17. A fuel cell system according to claim 14, wherein the power intake electrode serves as a power discharge electrode at a time of discharge of the fuel cell system.

18. A fuel cell system according to claim 14, wherein the electric power from the outside taken in from the power intake electrode is applied to the electrode to which an oxidizer is supplied and the electrode to which fuel is supplied, and electrolyzes the water supplied to the ion conductor.

19. A fuel cell system according to claim 14, further comprising a pressure sensor that is provided in the fuel tank, wherein a signal concerning a pressure of hydrogen from the pressure sensor is used for control of electric power to be supplied to the fuel cell system.

20. A fuel cell system according to claim 14, further comprising:

a pressure sensor that is provided in the fuel

tank; and

a fuel supply valve that is provided in a fuel flow path, which introduces generated hydrogen to the fuel tank, and is opened and closed on the basis of a signal concerning a pressure of hydrogen from the pressure sensor.

21. A fuel cell system according to claim 14, further comprising:

a pressure sensor that is provided in the fuel tank; and

a residual capacity display section that displays a residual amount of fuel in the fuel tank of the fuel cell system on the basis of a signal from the pressure sensor.

22. A fuel cell system according to claim 14, further comprising a cooler that cools the fuel tank.

23. A fuel cell system according to claim 14, further comprising a heater that heats the cell section.

24. A fuel cell system that stores hydrogen, which is generated by electrolyzing water generated by discharge, comprising:

a cell section including an electrode to which

an oxidizer is supplied, an electrode to which fuel is supplied, and an ion conductor that is held between the electrode to which an oxidizer is supplied and the electrode to which fuel is supplied;

a water supply section that supplies water generated by discharge to the ion conductor of the cell section;

a power intake electrode that takes in electric power for electrolyzing water supplied from the water supply section to generate hydrogen from the outside; and

a fuel tank in which the generated hydrogen is stored.

25. A fuel cell system according to claim 24, wherein the water supply section includes: a water retention section that retains the water generated by discharge; and a water flow path that supplies water held in the water retention section to the ion conductor.

26. A fuel cell system according to claim 24, wherein the power intake electrode serves as a power discharge electrode at a time of discharge of the fuel cell system.

27. A fuel cell system according to claim 24,

wherein the electric power from the outside taken in from the power intake electrode is applied to the electrode to which an oxidizer is supplied and the electrode to which fuel is supplied, and electrolyzes the water supplied to the ion conductor.

28. A fuel cell system according to claim 24, further comprising a pressure sensor that is provided in the fuel tank, wherein a signal concerning a pressure of hydrogen from the pressure sensor is used for control of electric power to be supplied to the fuel cell system.

29. A fuel cell system according to claim 24, further comprising:

a pressure sensor that is provided in the fuel tank; and

a fuel supply valve that is provided in a fuel flow path, which introduces generated hydrogen to the fuel tank, and is opened and closed on the basis of a signal concerning a pressure of hydrogen from the pressure sensor.

30. A fuel cell system according to claim 24, further comprising:

a pressure sensor that is provided in the fuel tank; and

a residual capacity display section that displays a residual amount of fuel in the fuel tank of the fuel cell system on the basis of a signal from the pressure sensor.

31. A fuel cell system according to claim 24, further comprising a cooler that cools the fuel tank.

32. A fuel cell system according to claim 24, further comprising a heater that heats the cell section.

33. A method of charging a fuel cell system that stores hydrogen, which is generated by electrolyzing supplied water, in a fuel tank, comprising:

a step of supplying at least water supplied from an outside of the fuel cell system to an ion conductor constituting a cell section of the fuel cell system;

a step of electrolyzing the water supplied to the ion conductor with electric power taken in from the outside of the fuel cell system to generate hydrogen; and

a step of introducing the generated hydrogen to the fuel tank of the fuel cell system.

34. A method of charging a fuel cell system according to claim 33, wherein the supplied water comprises at least one of water supplied from the outside and water generated by discharge of the fuel cell system.

35. A method of charging a fuel cell system according to claim 33, wherein the supplied water is held by a water retention section and then supplied to the ion conductor through a water flow path.

36. A method of charging a fuel cell system according to claim 33, wherein the fuel cell system includes a power intake electrode for taking in electric power from the outside, and the power intake electrode serves as a power discharge electrode at a time of discharge of the fuel cell system.

37. A method of charging a fuel cell system according to claim 33, wherein electric power taken in from the outside is applied to an electrode to which an oxidizer is supplied and an electrode to which fuel is supplied, the electrodes constituting the cell section, and electrolyzes the water supplied to the ion conductor.

38. A method of charging a fuel cell system

according to claim 33, wherein electric power supplied to the fuel cell system is controlled on the basis of a pressure in the fuel tank.

39. A method of charging a fuel cell system according to claim 33, wherein opening and closing of a fuel supply valve provided in a fuel flow path, which introduces generated hydrogen to the fuel tank, is controlled on the basis of a pressure in the fuel tank.

40. A method of charging a fuel cell system according to claim 33, wherein a residual amount of fuel in the fuel tank, which is calculated on the basis of a pressure in the fuel tank, is displayed on a residual capacity display section.

41. A method of charging a fuel cell system according to claim 33, wherein the fuel tank is cooled.

42. A method of charging a fuel cell system according to claim 33, wherein the cell section is heated.